

WHAT IS CLAIMED IS:

1. An image forming apparatus comprising:
an image bearing member;
charging means that charges the image bearing
5 member;
developing member that develops an
electrostatic image formed on the image bearing
member with a developer;
transfer means that transfers a developer image
10 developed by the developing means; and
developer charging means which is located
further on an upstream side than the charging means
in a moving direction of a surface of the image
bearing member and further on a downstream side than
15 the transfer means and which charges the developer on
the image bearing member,
wherein the developer charging means
reciprocates in a longitudinal direction of the image
bearing member, and
20 when a number of rotations per unit time of the
image bearing member is assumed to be "a" and a
number of times of reciprocation per unit time of the
developer charging means is assumed to be "b",
assuming that $R = b/a$, a value of R is set in a range
25 of $1/25 \leq R \leq 3$ excluding $R = m/n$ (m and n are integers
of 5 or less).

2. An image forming apparatus according to
claim 1,

wherein a range of $0.96 R$ or more and $1.04 R$ or
less is excluded if the value of R is an integer, and
5 a range of $0.99 R$ or more or $1.01 R$ or less is
excluded if the value of R is a non-integer.

3. An image forming apparatus according to
claim 1,

10 wherein, in the longitudinal direction of the
image bearing member, when the developer charging
means reciprocates, a part of the image bearing
member corresponding to one end of the developer
charging means where the developer can be charged is
15 further on an outside than an effective charging
region where the charging means charges the image
bearing member.

4. An image forming apparatus according to
20 claim 1,

wherein the developing means is capable of
supplying the developer onto the image bearing member
and recovering a residual developer from the image
bearing member during image formation.

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5. An image forming apparatus according to
claim 1,

wherein the charging means comes into contact with the image bearing member to charge the image bearing member.

5 6. An image forming apparatus according to claim 1,

 wherein an oscillating voltage is applied to the charging means.

10 7. An image forming apparatus according to claim 1,

 wherein the developer charging means has an electroconductive fiber brush portion that comes into contact with the image bearing member.

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 8. An image forming apparatus comprising:
 an image bearing member;
 charging means that charges the image bearing member;

20 developing member that develops an electrostatic image formed on the image bearing member with a developer;

 transfer means that transfers a developer image developed by the developing means;

25 first developer charging means which is located further on an upstream side than the charging means in a moving direction of a surface of the image

bearing member and further on a downstream side than the transfer means and which charges the developer on the image bearing member; and

second developer charging means, which is
5 located further on the upstream side than the charging means in the moving direction of the surface of the image bearing member and further on the downstream side than the first developer charging means and which charges the developer on the image
10 bearing member,

wherein at least one of the first developer charging means and second developer charging means reciprocates in a longitudinal direction of the image bearing member, and

15 when a number of rotations per unit time of the image bearing member is assumed to be "a" and a number of times of reciprocation per unit time of at least one of the first developer charging means and the second developer charging means is assumed to be
20 "b", assuming that $R = b/a$, a value of R is set in a range of $1/25 \leq R \leq 3$ excluding $R = m/n$ (m and n are integers of 5 or less).

9. An image forming apparatus according to
25 claim 8,

wherein a range of 0.96 R or more and 1.04 R or less is excluded if the value of R is an integer, and

a range of 0.99 R or more or a range of 1.01 R or less is excluded if the value of R is a non-integer.

5 10. An image forming apparatus according to claim 8,

 wherein a voltage of a polarity opposite to a normal polarity of the developer is applied to the first developer charging means, and a voltage of a
10 polarity same as the normal polarity of the developer is applied to the second developer charging means.

 11. An image forming apparatus according to claim 8,

15 wherein the first developer charging means and the second developer charging means are arranged on an identical supporting member, and the supporting member is reciprocated to reciprocate both the first developer charging means and the second developer
20 charging means.

 12. An image forming apparatus according to claim 8,

 wherein, in the longitudinal direction of the
25 image bearing member, when the first developer charging means and the second developer charging means reciprocate, a part of the image bearing member

corresponding to one end of the first developer
charging means and the second developer charging
means where the developer can be charged is further
on an outside than an effective charging region where
5 the charging means charges the image bearing member.

13. An image forming apparatus according to
claim 8,

wherein the first developer charging means does
10 not reciprocate, and the second developer charging
means reciprocates.

14. An image forming apparatus according to
claim 13,

15 wherein, in the longitudinal direction of the
image bearing member, when the second developer
charging means reciprocates, a part of the image
bearing member corresponding to one end of the second
developer charging means where the developer can be
20 charged is further on an outside than an effective
charging region where the charging means charges the
image bearing member.

15. An image forming apparatus according to
25 claim 8,

wherein the second developer charging means
does not reciprocate, and the first developer

charging means reciprocates.

16. An image forming apparatus according to claim 15,

5 wherein, in the longitudinal direction of the image bearing member, when the first developer charging means reciprocates, a part of the image bearing member corresponding to one end of the first developer charging means where the developer can be charged is further on an outside than an effective charging region where the charging means charges the image bearing member and further on an inside than a region of the image bearing member where the second developer charging means can charge the developer.

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17. An image forming apparatus according to claim 8,

 wherein the developing means is capable of supplying the developer onto the image bearing member and recovering a residual developer from the image bearing member.

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18. An image forming apparatus according to claim 8,

25 wherein the charging means comes into contact with the image bearing member to charge the image bearing member.

19. An image forming apparatus according to claim 8,

wherein an oscillating voltage is applied to the charging means.

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20. An image forming apparatus according to claim 8,

wherein the developer charging means has an electroconductive fiber brush portion which comes into contact with the image bearing member.

21. An image forming apparatus according to claim 8,

wherein an oscillating voltage in which an AC voltage is superimposed on a DC voltage is applied to the first developer charging means.

22. An image forming apparatus according to claim 8,

wherein a DC voltage exceeding a discharge initiating voltage between the second developer charging means and the image bearing member is applied to the second developer charging means.

23. An image forming apparatus according to claim 8, further comprising a plurality of image forming means each provided with at least the image

bearing member, the charging means, the developing means, and the developer charging means,

wherein the developer can be transferred onto a plurality of transfer members, which are moved
5 opposing the respective image forming means, from the image bearing members of the respective image forming means.

24. An image forming apparatus according to
10 claim 23,

wherein the transfer member is an intermediate transfer member.

25. An image forming apparatus according to
15 claim 23, further comprising a transferring material carrying member for carrying and conveying the transfer member.

26. An image forming apparatus according to
20 claim 23,

wherein the plurality of image forming means form developer images of different colors, respectively.

27. An image forming apparatus according to
25 claim 23,

wherein the plurality of image forming means

are a plurality of or a single process unit
constituted detachably mountable to a main body of
the image forming apparatus.